



VALIDATION REPORT

YICHUN XIAOCHENGSHAN WIND POWER PROJECT IN China

REPORT No. 2007-1208

REVISION No. 03

VALIDATION REPORT



DET NORSKE VERITAS
CERTIFICATION AS

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Client: China Fulin Windpower Development Corporation	Client ref.: Mr. Guo Huidong

Project Name: Yichun Xiaochengshan Wind Power Project
Country: China
Methodology: ACM0002
Version: 07
GHG reducing Measure/Technology: Power generation using wind resources
ER estimate: 114 606 tCO₂e annual average over the first crediting period.

Size☒ Large Scale☐ Small Scale**Validation Phases:**☒ Desk Review☒ Follow up interviews☒ Resolution of outstanding issues**Validation Status**☒ Corrective Actions Requested☒ Clarifications Requested☒ Full Approval and submission for registration☐ Rejected

In summary, it is DNV's opinion that the "Yichun Xiaochengshan Wind Power Project" in China, as described in the PDD of version 6.1 dated 18 November 2008 based on the republished PDD of version 6.0 dated 20 August 2008, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002 version 07. DNV thus requests the registration of the project as a CDM project activity.

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Key words:

Climate Change

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Validation

Clean Development Mechanism

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Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CL	Clarification request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
EIA	Environmental Impact Assessment
EPB	Environmental Protection Bureau
FSR	Feasibility Study Report
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IETA	International Emission Trading Association
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MP	Monitoring Plan
NECPG	Northeast China Power Grid
NCV	Net Calorific Value
NDRC	National Development and Reform Commission
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PLF	Power Load Factor
PCF	World Bank's Prototype Carbon Fund
SCE	Standard Coal Equivalent
UNFCCC	United Nations Framework Convention on Climate Change



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1 EXECUTIVE SUMMARY – VALIDATION OPINION

Det Norske Veritas Certification AS (DNV) has performed a validation of the “Yichun Xiaochengshan Wind Power Project” in China. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host Party criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfillment of stated criteria.

The project participants are Yichun Longyuan Wind Power Co., Ltd. from the host Party China and Kommunalkredit Public Consulting GmbH from Annex I Party Austria. Both the participating Parties meet all the requirements to participate in the CDM. The DNA of China has issued the letter of approval (LoA) /2/ on 26 August 2007, authorizing Yichun Longyuan Wind Power Co., Ltd as project participant and also confirming that the project assists in achieving sustainable development. The DNA of Austria has also issued a LoA /3/ on 24 September 2007, authorizing Kommunalkredit Public Consulting GmbH as project participant. The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards China.

The project correctly applies ACM0002 version 07: “Consolidated baseline & monitoring methodology for grid-connected electricity generation from renewable sources”.

By generating renewable energy the project will displace fossil fuel based grid electricity. The project results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be on the average 114 606 tCO_{2e} per year over the first 7-year crediting period. The emission reduction forecast has been checked, and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring methodology ACM0002 version 07 has been applied correctly. The monitoring plan has been generally identified. The procedures for monitoring, operating and maintenance have been elaborated. Stakeholders’ inputs have been invited via the UNFCCC web-site. No comments were received.

In summary, it is DNV’s opinion that the “Yichun Xiaochengshan Wind Power Project” in China, as described in the PDD of version 6.1 dated 18 November 2008 based on the republished PDD of version 6.0 dated 20 August 2008 meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002 version 07. DNV thus requests the registration of the “Yichun Xiaochengshan Wind Power Project” as a CDM project activity.



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2 INTRODUCTION

China Fulin Windpower Development Corporation has commissioned Det Norske Veritas Certification AS (DNV) to perform a validation of the “Yichun Xiaochengshan Wind Power Project” in China (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

2.1 Objective

The purpose of a validation is to have an independent third party assessment of the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

2.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0002 version 07. The validation team has, based on the recommendations in the Validation and Verification Manual /5/ employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.



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3 METHODOLOGY

The validation consisted of the following three phases:

- I a desk review of the project design documents
- II follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation assessed during the validation:

- /1/ China Fulin Windpower Development Corporation, Project Design Document for Yichun Xiaochengshan Wind Power Project, Version 2.1 dated 10 April 2007 for public and Version 06 dated 20 August 2008 for republic and version 6.1 dated 18 November 2008
- /2/ Letter of Approval issued by DNA of China dated 26 August 2007.
- /3/ Letter of Approval issued by DNA of Austria dated 24 September 2007.
- /4/ CDM Executive Board, Baseline and monitoring methodology ACM0002, Consolidated methodology for grid-connected electricity generation from renewable sources, Version 07, 30 November 2007.
- /5/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF), *Validation and Verification Manual*.
<http://www.ieta.org/ieta/www/pages/index.php?IdSitePage=200>
- /6/ Xinjiang Windpower Design Institute, the feasibility study report of Yichun Xiaochengshan Wind Power Project in April 2006 and the approval letter by Development and Reform Commission of Heilongjiang Province on 01 September 2006.
- /7/ Harbin Railway Authorities Environment Protection Co., the EIA of the Yichun Xiaochengshan Wind Power Project in April 2006 and the approval letter by Environmental Protection Bureau of Heilongjiang Province on 22 May 2006.
- /8/ Chinese DNA's guidance for the determination of grid boundaries and emission factors (July 18, 2008), NDRC official website:
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/2008/200887164119674.pdf>
- /9/ China's Regional Grid Baseline Emission Factor Calculation (OM) issued by Chinese DNA (July 18, 2008), NDRC official website
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1888.pdf>
- /10/ China's Regional Grid Baseline Emission Factor Calculation (BM) issued by Chinese DNA (July 18, 2008), NDRC official website
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1875.pdf>
- /11/ China Electric Power Yearbook 2003, 2004, 2005, 2006 and 2007.
- /12/ China Energy Statistical Yearbook 2005, 2006 and 2007.



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- /13/ 2006 IPCC Guidelines for National Greenhouse Gas Inventories.
<http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>
- /14/ CDM Executive Board, Guidance for request for deviation titled “Application of AM0005 and AMS-I.D in China”
(<http://cdm.unfccc.int/Projects/Deviations>)
- /15/ China NDRC, The statistics by China Electricity Council (CEC) on newly built thermal plants in 2006, and NDRC official website
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1875.pdf>
- /16/ State Power Corporation of China. *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*. Beijing: China Electric Power Press, 2003.
- /17/ CDM Executive Board: Tool for the demonstration and assessment of additionality, version 05.1, dated 26 August 2008.
- /18/ CDM Executive Board: Tool to calculate the emission factor for an electricity system, version 01.1, 29 July 2008.
- /19/ Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135 MW or below, Issued by State Council Office, decree No. 2002-6.
- /20/ Temporary provisions on construction of small thermal power generation unit, published on 17 August 1997.
- /21/ NDRC, Approval regarding on-grid tariff of the wind farm projects of Hebei Zhangjiawan, Heilongjiang Wuergulishan etc. dated 3 December 2007.
- /22/ Proposal letter regarding on-grid tariff for Yichun Xiaochengshan Wind Power Project issued by the Planning & Statistical Bureau of Dailing District in Yichun City dated 20 December 2006.
- /23/ Heilongjiang Power Construction Supervising Co.,Ltd., The project construction permit for Yichun Xiaochengshan Wind Power Project dated 01 March 2007.
- /24/ Equipment purchase contract signed between Yichun Longyuan Wind Power Co., Ltd and Gamesa Wind Power (Tianjin) Co.,Ltd. dated 20 March 2007.
- /25/ Kyoto protocol ratification
http://unfccc.int/parties_and_observers/parties/items/2352.php
- /26/ Yichun Longyuan Wind Power Co., Ltd., IRR calculation spreadsheet for Yichun Xiaochengshan wind power project.
- /27/ Yichun Longyuan Wind Power Co., Ltd. (Project Owner) production personnel training plan & training records from June 2006 to August 2007.
- /28/ Grid access approval for Yichun Xiaochengshan wind power project by Heilongjiang Province Power Grid Co. Ltd. dated 30 August 2006 (Doc. No.: [2006]330#).
- /29/ News regarding wind power equipment development, dated 14 Oct 2008
<http://www.chinabidding.com/zxzx.jhtml?method=detail&docId=2822722>
- /30/ The construction contract signed by the Yichun Longyuan Wind Power Co., Ltd and the construction company dated 10 February 2007.
- /31/ Consulting agreement between Yichun Longyuan Wind Power Co., Ltd. and China Fulin Windpower Development Corp. dated 30 December 2006.



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- /32/ Economic Reference Daily, News on new energy development embarrassed by high cost , dated 27 February 2007
<http://www.chinaenergy.gov.cn/news.php?id=15688>,
The National Economic and Trading Commission, New energy and renewable energy development “tenth five years” macro-plan, dated 10 October 2001
<http://www.cas.ac.cn/html/Dir/2003/03/05/8139.htm>
- /33/ China Government Establish Policy to Promote Windturbine Manufactory, reported by China New Energy Website, dated 21 June 2007
<http://www.gzgj.gov.cn/kjxx/newsDetail.jsp?infoId=79934>
- /34/ The inflation of price for construction material and manpower, reported by Economic Observation Press, dated 18 June, 2006
<http://www.china.com.cn/chinese/EC-c/1246238.htm>
- /35/ Interim Regulation for Tariff of Renewable Energy Power Generation and Appointment of Expenses FAGAIJAGE(2006) No.7 dated 4 January 2006
http://www.gov.cn/ztl/2006-01/20/content_165910.htm
- /36/ Study report regarding tendering wind project development, published on China Construction Status-Sunshine Energy (2005-10)
<http://www.eri.org.cn/manage/upload/uploadimages/eri200672795944.pdf>
- /37/ Shi Pengfei (Deputy Director, Chinese Wind Energy Association), Statistics on China Wind Farm Installed Capacity in 2007.
- /38/ News regarding the electric power projects funded by China National Development Bank, from China Energy Net dated 22 August 2002
<http://www.china5e.com/news/power/200208/200208220027.html>
- /39/ Tariff approval of Mulan wind power project, issued by Heilongjiang Price bureau, document No: 2003 [241]
- /40/ The Compensation Agreement of occupying forest land between Yichun Longyuan Wind Power Co., Ltd. (Project Owner) and 1) Taoshan Forest Bureau dated 12 November 2006. 2) Langxiang Forest Bureau dated 12 November 2006
- /41/ The Land Compensation Agreement between Yichun Longyuan Wind Power Co., Ltd. (Project Owner) and 1) Dongshan Farm dated 25 March 2007 2) Farmer Zhang Yingquan dated 14 April 2007.
- /42/ Yichun Longyuan Wind Power Co., Ltd, 20 Copies of stakeholders consultation questionnaires (during April 2007), dated 17 July 2007.
- /43/ China Electric Year Book 2007/Shi Peng Fei, China Wind Power Industry Development Report (2006).
- /44/ NDRC, the notice regarding the requirements of wind power project construction management (No.[2005]1204), 4 July 2005.



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3.2 Follow-up Interviews with Project Stakeholders

On 17 July 2007, DNV performed an interview to resolve the issues identified during the desk review of the project design document. The representatives of China Fulin Windpower Development Corp. and Yichun Longyuan Wind Power Co., Ltd. were interviewed.

Table below shows the list of issues discussed during the site visits:

	Date	Name	Organization	Topic
/45/	2007-07-17	Mr.Chen Qiang, Project Manager	Yichun Longyuan Wind Power Co., Ltd.	---Project background information ---Project technology, operation, maintenance and monitoring capability ---Project additionality ---Project financial structure ---Project monitoring and management plan ---Project approval status ---Stakeholder consultation process
/46/	2007-07-17	Mr.Guo Huidong Project Manager, CDM Department	China Fulin Windpower Development Corp.	---Project design document ---Baseline determination ---Emission reductions calculation ---Project additionality

3.3 Resolution of Outstanding Issues

The objective of this phase of the validation was to resolve any outstanding issues which needed to be clarified prior to DNV's positive conclusion on the project design. In order to ensure transparency a validation protocol was customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for the "Yichun Xiaochengshan Wind Power Project" is enclosed in Appendix A to this report.



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Findings established during the validation can either be seen as a non-fulfilment of CDM criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) CDM and/or methodology specific requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities		
Requirement	Reference	Conclusion
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>This is either acceptable based on evidence provided (OK), a Corrective Action Request (CAR) of risk or non-compliance with stated requirements or a request for Clarification (CL) where further clarifications are needed.</i>

Validation Protocol Table 2: Requirement checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
<i>The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (OK), or a corrective action request (CAR) due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.</i>

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	Ref. to checklist question in table 2	Summary of project owner response	Validation conclusion
<i>If the conclusions from the draft Validation are either a CAR or a CL, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 2 where the CAR or CL is explained.</i>	<i>The responses given by the project participants during the communications with the validation team should be summarised in this section.</i>	<i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".</i>

Figure 1: Validation protocol tables:



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3.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by technical reviewers qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3.5 Validation Team

Role/Qualification	Last Name	First Name	Country
Team leader/GHG auditor	Jiao	Qinghong (Rowena)	China
CDM validator	Sun	Shuyong	China
GHG auditor	Ma	Jiandong	China
Sector Expert	Michael	Lehmann	Norway
Technical reviewer	Ramachandran	Ramesh	India
Technical Reviewer (applicant)	Lara	Barbara	Mexico
Technical Reviewer (applicant)	Yang	Weidong	China
Technical Reviewer	Viddal	Mari Grooss	Norway

The qualification of each individual validation team member is detailed in Appendix B to this report.



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4 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation (version 6.1 dated 18 November 2008).

4.1 Participation Requirements

The project participants are Yichun Longyuan Wind Power Co., Ltd. from the host Party China and Kommunalkredit Public Consulting GmbH from Annex I Party Austria. Both the participating Parties meet all the requirements to participate in the CDM /25/. The DNA of China has issued the letter of approval (LoA) /2/ on 26 August 2007, authorizing Yichun Yichun Longyuan Wind Power Co., Ltd as a project participant and also confirming that the project assists in achieving sustainable development. The DNA of Austria has also issued a LoA /3/ on 26 August 2007, authorizing Kommunalkredit Public Consulting GmbH as a project participant.

The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards China.

4.2 Project Design

The project main characteristics are described in the FSR /6/. The project involves installation and operation of 58 wind turbines in Xiaochengshan District, Yichun City, Heilongjiang Province of China.

The total installed capacity of 49.3 MW with each unit of 850 kW, which is estimated to generate 100 470 MWh annually /6/. The whole set technology of the 850 kW Gamesa52 wind turbine is introduced by Gamesa Corporation, and the technology is deemed to reflect good practices in China /24/.

Being a renewable electricity project, the project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants.

The project boundaries include the geographical site of the project activity and the system boundary defined as the Northeast China Power Grid (NECPG) to which the project plant will be connected by transmission line/28/.

Since the project has been approved on 1 September 2006 /6/, the civil work contract has been signed on 10 February 2007 /30/ and the project construction permit has been obtained on 01 March 2007 /23/ and the equipment purchasing contract has been on 20 March 2007 /24/. This date of 10 February 2007 /30/ can be considered to be the project starting date because it is considered as the earliest date of committing from project participant to expenditure relating to the construction or implementation of the project activity. The expected operational lifetime of the project activity is 20 years /24/. A renewable crediting period of 7 years has been chosen for the project, starting from 1 March 2009 or the date of registration



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whichever is later. The project's power generation will displace the power generated by the existing power plants and likely capacity additions in the Northeast China Power Grid, resulting in an estimated emission reduction of 114 606 tCO₂ annually.

4.3 Baseline Determination

The project applies the approved baseline methodology ACM0002 (version 07), titled "Consolidated methodology for grid-connected electricity generation from renewable sources" /4/

The applied baseline methodology is justified as it has been demonstrated that the project activity ensures that:

- It is a grid connected zero emission renewable power generation activity from wind energy /28/.
- The project does not involve switching from fossil fuel to renewable energy at the project site /6/.
- The geographic and system boundaries for the relevant electricity grid (NECPG) can be clearly identified and information on the characteristics of the grid is available /8//11/.

The project boundary is defined as the site of the project activity and the NECPG including the Liaoning, Jilin and Heilongjiang provincial grids. This is in line with the delineation of grid boundaries as provided by the DNA of China /8/. The defined project boundary is in line with ACM0002 (version 07).

Emission sources and gases included in the project boundary are:

	<i>GHGs involved</i>	<i>Description</i>
<i>Baseline emissions</i>	<i>CO₂</i>	<i>The Northeast Power Grid</i>
<i>Project emissions</i>	<i>N/A</i>	<i>Project emission is regarded as zero as the project is a renewable energy (wind source) project.</i>
<i>Leakage</i>	<i>N/A</i>	<i>There are no leakages that need to be considered in applying this methodology.</i>

Since the project activity is the installation of a new grid-connected renewable power plant, the baseline scenario is the following:

the electricity delivered from the project activity to the grid would have otherwise been generated by the operation of fossil fuels grid-connected power plants and the addition of new generation sources. This is reflected in the combined margin (CM) - the weighted average of the operating Margin (OM) emission factor and the build margin (BM) emission factor calculated in "Tool to calculate the emission factor for an electricity system" /18/. The



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weighting is set to respectively 75% and 25%, the default values stipulated by Tool to calculate the emission factor for an electricity system for wind farm projects.

The NECPG is dominated by coal-fired power plants. It is deemed likely that coal-fired power plants will continue to dominate the power sector due to the local availability of low-cost coal. It is expected that renewable capacity additions will not have significant effects on the mix of the NECPG during the first crediting period.

4.4 Additionality

The additionality of the project has been demonstrated using the “Tool for the demonstration and assessment of additionality” version 05.1 /17/, approved by the CDM-EB.

It has been demonstrated by the chronological events that CDM revenues were seriously considered in the decision to proceed with the project activity prior to starting of the project activity.

- a) Yichun Longyuan Wind Power Co. Ltd., the project developer, conceptualized the CDM in April 2006 during the preparation of the feasibility study report. The feasibility study report was approved on 1 September 2006 /6/. In the feasibility study, the CDM revenue is considered to improve the return of the project income even if the project IRR is estimated to 8.47% in the FSR, which indicated that the awareness of CDM was in mind of PP prior to the project activity starting date.
- b) However, on 20 December 2006, the project developer received the proposal letter regarding on-grid tariff for Yichun Xiaochengshan wind farm issued by the Planning & Statistical Bureau of Dailing District in Yichun City, which resulted in the lower tariff than the estimated in the FSR, the project was then financially unattractive accordingly (the project IRR became lower than benchmark 8%) /22/.
- c) On 30 December 2006, the CDM service contract was signed between Yichun Longyuan Wind Power Co., Ltd. and China Fulin Windpower Development Corp /31/.
- d) The civil work contract was signed on 10 February 2007 /30/, on which date PP is considered to start formally committing to expenditure with implementation of the project activity (i.e. the starting date of the project activity).
- e) The construction permit was subsequently obtained on 1 March 2007 by the project developer /23/.
- f) On 20 March 2007, the purchasing contract of wind power turbines of 58 sets was signed/24/.
- g) Finally, the PDD was started to be published for public stakeholder comments as part of validation in May 2007 (refer to chapter 4.9 of this validation report).

All the relevant evidences supporting this information have been provided and verified by DNV. It is indicated that the continuing and real actions were taken to secure CDM status for the project in parallel with its implementation by means of all above evidences supporting the information stated above.



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Step 1: the following four alternatives consistent with the current laws and regulations have been identified for the project activity.

- a) Construction of a coal-fired power plant with equivalent installed capacity or annual electricity power generation;
- b) The proposed project activity not undertaken as a CDM project activity;
- c) Construction of a power plant using other renewable resources with the same installed capacity as the project;
- d) The equivalent electricity output or electricity generation addition provided by the Northeast China Power Grid (NECPG).

The alternative a) was eliminated based on the evidence that in China the thermal power plant with a capacity less than 135 MW are prohibited to be built in areas covered by large grids such as provincial grids /19/. The alternative c) was eliminated because compared with other renewable energy technology in China, only small hydro power might have better benefits than wind power /32/. While Dailing area, where the project is located, is the tree-covered mountains with no rivers, lacks exploitable hydro resources for equivalent installed capacity /6/ therefore, the alternative c) is deemed unrealistic and should be eliminated.

Since alternative b) and d) are credible and realistic alternatives in conformance with current relevant laws and regulations in China, the following analysis will be considered.

Step 2: Investment analysis.

Since the alternative b) generates revenues and alternative d) is the supply of electricity from the Grid (NECPG), according to Tool for the demonstration and assessment of additionality/17/ the benchmark analysis should be applied for conducting the investment analysis.

It has been demonstrated that in China a project IRR of 8% for the total investment of a project is regarded as a benchmark /16/ for investments in hydropower plants, fossil fuel fired power plants and wind power projects, which can be considered to be appropriate. Based on the data from the feasibility study report and the propositional letter of the tariff issued by the local price Authorities /22/, the project-IRR without CER revenues is verified to be 6.95% /26/, which shows that the project is not financially attractive compared to the benchmark in the absence of CDM benefits.

DNV confirms that

- a) The input parameters (except tariff) used in the financial analysis are taken from the Feasibility Study Report (FSR) developed by China Fulin Windpower Development Corporation & Xinjiang Windpower Design Institute in April 2006 and approved by Development and Reform Commission of Heilongjiang Province on 1 September 2006 /6/. The electricity tariff of 0.61 RMB/kWh (incl. VAT) or 0.5622 RMB/kWh (excl. VAT) has been sourced from the propositional letter of Yichun Planning & Statistical Bureau dated 20 December 2006 /22/, compared with 0.6176 RMB/kWh (excl. VAT) estimated in



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the FSR /6/. The input parameters used in the financial analysis can thus be considered information provided by independent and recognized sources.

- b) DNV has compared the input parameters for the financial analysis included in the PDD with the parameters stated in the FSR /6/ and above mentioned source /22/ and was able to confirm that the values applied are consistent with the value stated in the FSR and above mentioned source /22/. The electricity tariff information (20 December 2006) /22/ was available at the time when decision to proceed with the project was made (10 February 2007) /30/.
- c) The FSR was approved on 1 September 2006 and thus only 5 months prior to the decision to proceed with the project activity which was on 10 February 2007. Given this relative short period of time between approval of the FSR and the decision to proceed with the project activity it is unlikely in the context of the project that the input values would have materially changed and that it is thus reasonable to assume that the FSR /6/ and the propositional letter for the grid tariff (as of 20 December 2006) /22/ have been the basis of the decision to proceed with the investment in the project.
- d) The input parameters used in the financial analysis were compared with the data reported for other similar proposed CDM projects in the Heilongjiang province, by comparing investment costs per MW, electricity tariff, PLF and percentage of O&M costs relative to total investment costs, etc. DNV was able to confirm that the input parameters used in the financial analysis are reasonable and adequately represent the economic situation of the project.

A sensitivity analysis has been carried out for parameters contributing more than 20% to revenues or costs. Reasonable variations of the total investment, annual operational costs, and electricity output and on-grid tariff were checked by calculating the variation necessary to reach the benchmark and then discussing the likelihood for that to happen. None of the parameters in the sensitivity analysis are considered to have any significant positive correlation.

If the investment costs decrease by 6.9%, the benchmark of 8% will be reached. The 88.35% of total investment is used to purchase wind turbines equipment and installation /6/, and the price tendency of the equipment and materials for wind project is escalating during these several years because of the increasing demand of the equipments /33/. The documented evidence has been provided to DNV for validation. It could be seen that the decrease of the total investment by 6.9% is not possible for this project and the project IRR could not exceed the benchmark.

The PLF can have an impact on project financial performance. If the PLF increases by 6.8%, the project IRR could also exceed the benchmark. However, the PLF value (or annual output) depends on the wind speed of the project site at the specific wind turbine. As per the feasibility study report, the annual electricity output is estimated based on the twenty-year weather statistic data from 1986 to 2005, which was obtained through the professional software WAsP to determine the richest wind source area, then using another software WindFarmer to optimize the location of each turbine in order to maximize power generation /6/. Otherwise, since the PLF is positive correlative with the wind speed, as per FSR analysis



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the average wind speed tendency looks like to be decreasing over the past twenty years (1986-2005). Therefore the probability that the PLF (or annual output) is 6.8% higher than the estimated value through the whole project operational period is unreasonable.

As the same as the PLF, the electricity tariff will begin to exceed the benchmark if it increases by 6.8%. However, it is unlikely for the tariff of the proposed project to increase 6.8%. First of all, in China the tariff is controlled by Chinese government /35/, who is gradually lowering down the on-grid tariff for wind power projects /36/. Secondly, based on the proposal letter regarding on-grid tariff for Yichun Xiaochengshan wind farm issued by Yichun Planning & Statistical Bureau dated on 20 December 2006 /22/, the tariff for the proposed project has been decreased by 9% comparing with the estimation in the FSR /6/. Therefore it is not likely that the tariff of the proposed project could increase with 6.8%.

The project-IRR exceeds the benchmark when the annual O&M cost decreased by more than 25.3%. However, considering economical development in China and the increasing price rise of materials in recent years, it is deemed more likely that the O&M costs will increase. The documented evidence has been provided to and verified by DNV/34/.

The IRR calculation worksheets have been verified. The consideration of CDM revenues improves the IRR of the project activity to approximately 9.77%.

In conclusion, the investment analysis and sensitivity assessment have shown that the project activity is unlikely to be the most financially attractive option.

Step 3: Barrier analysis.

No barrier analysis has been applied.

Step 4: Common practice analysis.

Since the wind farm projects in the same province have the similar wind resource, grid structure, geological and transportation conditions, economic developing status, regulatory framework and investment environment, the wind farm projects in the Heilongjiang province with installed capacity less than 50 MW (the wind projects with installed capacity of above 50 MW will be approved by the central government /44/) are deemed appropriate to compare. Because the wind farm projects were in the demonstration period before 2003 /43/, the scope of the projects constructed and operated after 2003 are selected for common practice analysis of above mentioned projects, the similar projects of which are from the Chinese Wind Energy Association /37/.

It has been demonstrated by an analysis of the operating wind power plants after 2003 and located in Heilongjiang Province with the installed capacity less than 50MW /37/ that they either enjoyed high tariff (0.78 RMB/kWh incl.VAT) /39/ than the proposed project or received favourable loan from Asia Development Bank, China National Development Bank and World Environment Fund/38/ due to the similar investment barriers/financial unattractiveness as the proposed project. The analysis has been verified and is deemed to be acceptable.

In summary, it is sufficiently demonstrated that the project is not a likely a baseline scenario and that emission reductions are hence additional



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4.5 Monitoring

The project applies the approved monitoring methodology ACM0002 version 07 “Consolidated monitoring methodology for zero emissions grid-connected electricity generation from renewable sources”. The selected monitoring methodology is applicable for the project activity as it involves grid-connected renewable power generation using wind energy.

4.5.1 Parameters determined ex-ante

The parameters determined *ex-ante* are the parameters and data available at validation and not monitored throughout the crediting period but that are determined only once and thus remain fixed throughout the crediting period, which include the amount of fuel i consumption in year y for generation $F_{i,j,y}$, the electricity supplied to the grid except low-cost or must-run operating power plant in year y $GEN_{i,y}$, the net calorific value per mass or volume unit of fuel i $NCV_{i,y}$, the oxidation factor of fuel i $OXID_y$, CO_2 emission factor per unit energy of fuel i $EF_{CO_2,i}$, the efficiency of advanced thermal power plant additions FC_{bat} , the installed capacity in NECPG in year y CAP_y .

The amount of fuel i consumption in year y for generation $F_{i,j,y}$ and net calorific value per mass or volume unit of fuel i $NCV_{i,y}$ are derived from the china energy statistics yearbook 2005-2007 edition /12/. The electricity supplied to the grid except low-cost or must-run operating power plants included in NECPG in year y $GEN_{i,y}$ and installed capacity in NECPG in year y CAP_y are derived from the china electric power yearbook 2005-2007 /11/. The oxidation factor of fuel i $OXID_y$ and CO_2 emission factor per unit energy of fuel i $EF_{CO_2,i}$ are derived from IPCC 2006 default values /13/. The efficiency of advanced thermal power plant additions FC_{bat} are derived from the announcement regarding emission factor of regional electric power grid issued by DNA of China /15/.

The data and parameter sources are independent information sources and the input data are verified to be consistent with them and reasonable.

4.5.2 Parameters monitored ex-post

The methodology requires monitoring of the following for wind farm projects:

- Electricity supplied to the grid by the project, consistent with “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (ACM0002)/4/;
- Data needed to recalculate the operating margin emission factor, if needed, based on the choice of the method to determine the operating margin (OM), consistent with “Tool to calculate the emission factor for an electricity system” /18/;
- Data needed to recalculate the build margin emission factor, if needed, consistent with “Tool to calculate the emission factor for an electricity system” /18/;

The operating margin and build margin emission factors are determined *ex-ante*, therefore the parameter monitored *ex-post* is the electricity supplied to the grid by the proposed project activity. The net electricity supplied by the project will be measured hourly and recorded monthly. This data will be cross verified with the transaction notes of electricity between the project owner and the grid company.



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4.5.3 Management system and quality assurance

The project's Monitoring Plan includes:

- A description of the responsibilities and authorities for project management,
- Procedures for monitoring and reporting, and QA/QC procedures,
- A description of the installation of metering equipment,
- Procedures for the calibration of metering equipment,
- A description of training and maintenance needs.
- Procedures for day-to-day records keeping & storage.

Detailed procedures are in place. These will be maintained and implemented to enable subsequent verification of emission reductions.

4.6 Estimate of GHG Emissions

The emission reduction ER_y by the project activity during the crediting period is calculated as the difference between the baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y).

The baseline emissions are calculated as the product of the net electricity exported to the grid and the grid emission factor of the concerned grid. The net electricity exported to the grid is measured and the grid emission factor has been calculated *ex-ante* and is fixed for the entire crediting period.

Being a renewable energy project, there are no project emissions due to no auxiliary equipment driven with fossil fuel fired power /6/. Leakage: no leakage has to be considered for the proposed project activity as per ACM0002 for wind project /4/.

EG_y stands for the electricity supplied to the Grid by the project annually, the value estimated to be 100 470 MWh available at validation /6/.

$EF_{grid,cm,y}$ stands for the combined margin grid emission factor which is estimated to be 1.1407 tCO₂ below for NECPG

The BE_y is estimated to achieve 114 606 tCO₂ per year.

The PDD was republished in August 2008 with the latest data for calculation of the grid emission factor at the time. This was updated at the time of requesting registration of the project to the latest data available, including data from 2006. The calculation is furthermore in accordance with the calculation of the combined margin emission factor published by the DNA of China.

The assessment of the grid emission factor of NECPG is as follows:

The grid emission factor of the Northeast China power grid (NECPG) is determined by the *ex-ante* options of the Tool to calculate the emission factor for an electricity system/18/ and is fixed constant for the entire 7 years crediting period of the project activity. The combined margin grid emission factor has been calculated as the weighted average of operating margin



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and the build margin considering a weight ratio of 75:25 for wind projects, in line with the Tool /18/.

The combined margin emission factor is determined *ex-ante* based on the most recent information available. The calculation of the operating margin (OM) emission factor, the simple OM emission factor calculation method is selected because low cost must run projects constitute less than 50% of the total grid generation (5.44%, 4.72%, 6.45%, 7.98% and 5.25% from 2002 to 2006 respectively) /11/ and data is not available for applying the dispatch data analysis.

The aggregated generation and fuel consumption data are used due to the fact that more disaggregated data are not available in the NECPG. Country specific data for net calorific value (NCV_{i,y}) of each type of fossil fuel, the IPCC 2006 default values for the oxidation factor and emission factor of each type of fossil fuel and the total electricity delivered to the NECPG are selected and are deemed reasonable. China Energy Statistics Yearbooks 2005, 2006 and 2007 editions and China Electric Power Yearbooks 2005-2007 editions are used for operating margin calculation. The OM is calculated to be 1.25609 tCO₂/MWh as a generation-weighted average for the three years.

Because plant specific fuel consumption and electricity generation data is not publicly available in China, the EB guidance on the request for deviation titled “Application of AM0005 and AMS-I.D in China” /14/ has been applied as follows:

- The capacity additions from the years 2000 to 2006 is chosen and this represents 19.39% of total installed capacity.
- Use of weights estimated using installed capacity in place of annual electricity generation. The weight of installed capacity additions for thermal power plant is accounted for 87.57% of total installed capacity additions in this period. Since specific data for each technology is not available, the fraction of fuels (coal 98.7%; natural gas 0.22%; oil 1.08%) was estimated from the CO₂ intensity for the fuels used in NECPG
- Use of the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption. This is 37.28% for coal power plants and 48.81% for oil power plants and gas power plants./15/

Country specific net calorific value of each kind of fuel, country specific emission factor of each fuel and IPCC 2006 default values of oxidization factors are used to calculate the BM. The data applied are considered as the best data available for calculating the BM in the NECPG The official supporting documentation has been verified. BM is calculated to 0.7946 tCO₂e/MWh.

The weights ω_{OM} and ω_{BM} are selected as 0.75 and 0.25, respectively, as stipulated for wind project by Tool to calculate the emission factor for an electricity system/18/. The combined margin of 1.1407 tCO₂/MWh is fixed *ex-ante* for the entire first crediting period.

The data used to calculate OM and BM are derived from China Energy Statistical Yearbooks 2005, 2006, 2007 editions and China Electric Power Yearbooks 2003 to 2007 editions, which are the most recent data sources available at the time of the PDD re-submission to the DOE



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for validation due to updating of the PDD for revised version of ACM0002. The selection of the parameters is complete and transparent.

The calculation is furthermore in accordance with the calculation of the combined margin emission factor by the DNA of China published on 18 July 2008 /8/.

The GHG calculations are complete and transparent, and their accuracy has been verified.

4.7 Environmental Impacts

An environmental impact assessment (EIA) has been conducted according to Chinese laws and regulations. The potential environmental impacts have been sufficiently identified. The conclusion of the report has been described in the PDD, and no significant environmental impacts are expected from the project activity. The project does not involve the resettlement based on the EIA. The project will have little impact on birds during operation according to EIA. The local Environmental Protection Bureau (EPB) approved the project activity on 22 May 2006 /7/.

4.8 Comments by Local Stakeholders

The project owner successfully held a stakeholder meeting in Dailing county on 1 October 2006. Total 8 stakeholder representatives from the local authorities such as Development and Reform Bureau and the Environmental Protection Bureau of Dailing county, the Electricity Supply Bureau, etc. were attending the meeting. Also the local residents were invited through distributing and collecting responses to the questionnaires in April 2006. There were no adverse comments on the project activity and 100% of the respondents agree with the development of the project. All the questionnaires received with comments have been verified by DNV /42/ the comments received will be taken into consideration during construction and operation to achieve environmental and social benefits.

Otherwise the land occupation for the wind power project has been appropriately dealt with by the project owner /40//41/.

4.9 Comments by Parties, Stakeholders and NGOs

The PDD of 10 April 2007 was made publicly available on DNV's climate change website (http://www.dnv.com/focus/climate_change/projects/projectdetails.asp?ProjectId=1230) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 31 May 2007 to 29 June 2007.

No comments were received in this period

The PDD of 20 August 2008 was made public available on DNV's climate change website (http://www.dnv.com/focus/climate_change/Projects/ProjectDetails.asp?ProjectId=1991) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 29 August 2008 to 27 September 2008.

No comments were received in this period.

APPENDIX A

CDM VALIDATION PROTOCOL

Table 1: Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities

Requirement	Reference	Conclusion
About Parties		
The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	OK
The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	CAR-1 OK
The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	CAR-1 OK
In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK Table 2 A.2.4
Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	CAR-1 OK Table 2 A.2.3
The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK Table 2 A.2.3.
The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	Austria's assigned

Requirement	Reference	Conclusion
		amount is 92% of the emission level in 1990.
The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedures §31b	Austria has in place a national system for estimating GHG emissions and annually submits its most recent inventory to the UNFCCC
About additionality		
Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	CL3 & CL4 OK Table 2 B.3
About forecast emission reductions and environmental impacts		

Requirement	Reference	Conclusion
The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	OK
For large-scale projects only		
Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	OK Table 2 Section D
About stakeholder involvement		
Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	OK Table 2 Section E
Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
Other		
The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK Table 2 B.1 & B.8
A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §45c,d	OK Table 2 B.2
The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force major.	CDM Modalities and Procedures §47	OK

Requirement	Reference	Conclusion
The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	OK
Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK Table 2 B.10 & B.13

Table 2: Requirements Checklist

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview		Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project Activity <i>The project design is assessed.</i>						
A.1. Project Boundaries <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>						
A.1.1. Are the project's spatial boundaries (geographical) clearly defined?		/1/ /6/	DR	Yes. The project is located in Dailing District, Yichun City, Heilongjiang Province, P. R. China. The geographical coordinates of center location of the project are east longitude 128°35', north latitude 46°49', which is verified based on the FSR for the project.		OK
A.1.2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?		/1/ /8/ /28/	DR	Yes. The projects system boundaries are clearly defined through the description in the PDD that the proposed project power plant and all power plants within the Northeast China Power Grid which the proposed project power plant is connected to /28/ will be included in the spatial extent of the project boundary. The Northeast China Power Grid includes the grids of Liaoning Province, Jilin Province, Heilongjiang Province, which will be documented and published by the DNA of China/8/.		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
A.2. Participation Requirements <i>Referring to Part A, Annex 1 and 2 of the PDD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.</i>					
A.2.1. Which Parties and project participants are participating in the project?	/1/	DR I	The host party involved in the project is China and the Annex-I participating Party is Austria. Yichun Longyuan Wind Power Co., Ltd. is the project participant from the Host Party (P. R. China). Kommunalkredit Public Consulting GmbH is the other project participant as a buyer.		OK
A.2.2. Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	/1/ /2/ /3/	DR	No. The letters of approval from the DNAs of China and Annex I Party Austria have not been obtained, for which all project participants will be not confirmed to be authorized by an involved Party.	CAR-1	OK
A.2.3. Do all participating Parties fulfil the participation requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority	/1/ /2/ /3/ /25/	DR	- China ratified the Kyoto Protocol on 30 August 2002. - Austria ratified the Kyoto Protocol on 30 May 2002. - Voluntary Participation of the Parties will be confirmed after the LoA's from both of them are submitted to DNV.	CAR-1	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			- Austria's assigned amount is 92% of the emission level in 1990. - Chinese DNA is the National Development and Reform Commission (NDRC). - DNA of Austria is Federal Ministry of Agriculture, Forestry, Environment and Water Management.		
A.2.4. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance.	/1/ /6/	DR I	Based on the proposed project approval from the government/6/, the total investment of 489 710 000 RMB (fluid capital and loan interests included) will be financed from the capital of the project owner for 163 240 000.00 RMB and the bank loan for 326 470 000.00 RMB . The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards China.		OK
A.3. Technology to be employed <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
A.3.1. Does the project design engineering reflect current good practices?	/1/	DR	Whether the project design engineering reflects current good practices in China is not described in PDD.	CL	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
A.3.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1/ /6/	DR	The wind turbines applied are manufactured by Gamesa Corporation. However, it has to be clarified whether the imported technology used in the project will result in better performance than commonly used technologies in China.	CL-1	OK
A.3.3. Does the project make provisions for meeting training and maintenance needs?	/1/ /27/	DR I	The project owner has made the training schedule for the whole project personnel, which is provided to DNV./27/ However, the training records as per the training schedule have not been maintained.	CL-2	OK
A.4. Contribution to Sustainable Development <i>The project's contribution to sustainable development is assessed.</i>					
A.4.1. Has the host country confirmed that the project assists it in achieving sustainable development?	/1/ /2/	DR	The letter of approval from the DNA of China confirming the project being in line with the sustainable development policies of host country has not been received yet.	CAR-1	OK
A.4.2. Will the project create other environmental or social benefits than GHG emission reductions?	/1/ /6/ /7/	DR I	Yes, as a renewable energy project, the project implementation may improve local economic development and mitigate local environmental pollution caused by coal-fired power plants, and creating new job opportunities for the local people with more than 22 jobs during construction and operation of the project.		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
B. Project Baseline <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
B.1. Baseline Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Does the project apply an approved methodology and the correct version thereof?	/1/ /4/	DR	Yes. The project applies the methodology of ACM0002 “Consolidated methodology for grid-connected electricity generation from renewable sources”, version 06, which was approved by EB on 19 May 2006. Secondly for republishing PDD, The project applies the methodology of ACM0002 “Consolidated methodology for grid-connected electricity generation from renewable sources”, version 07, which was approved by EB on 30 November 2007.		OK
B.1.2. Are the applicability criteria in the baseline methodology all fulfilled?	/1/ /4/ /6/ /8/ /11/ /12/ /28/	DR	Yes. The project is a new built wind power plant with the capacity addition from a renewable energy source whose power is delivered to Northeast China Power Grid ,/28/ and does not involve on-site fuel switching from fossil fuels to a renewable source. The geographic and system boundaries for the relevant electricity grid (NECPG) can be		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			clearly identified and information on the characteristics of the grid is available./8//11//12/		
B.2. Baseline Scenario Determination <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>					
B.2.1. What is the baseline scenario?	/1/ /4/ /18/ /28/	DR	As the project activity is setting up a new wind power plant, the baseline scenario as per the methodology ACM0002, is “electricity delivered to the grid by the project would have otherwise been generated by the operation of grid connected power plants and by addition of new generating sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”; the grid which the proposed project activity will be connected to is Northeast China Power Grid The selected baseline scenario in the PDD is the same.		OK
B.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/ /4/	DR	For a renewable energy project of wind power, no other alternative scenarios are required in the methodology ACM0002.		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
B.2.3. Has the baseline scenario been determined according to the methodology?	/1/ /4/	DR	Yes.		OK
B.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /14/ /15/ /18/	DR	Yes. For CM calculation, the CO ₂ emission factors of the coal, oil and gas fuel-fired best technology for power generation in China /15/ are used as the CO ₂ emissions factors of the coal, oil and gas fuel-fired power plant for BM calculation.		OK
B.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/ /5/	DR	Yes. The renewable energy law, sectoral policy and development trends in Northeast China Power Grid have been taken into account.		OK
B.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/ /5/	DR	Yes.		OK
B.2.7. Have the major risks to the baseline been identified?	/1/ /4/ /5/ /18/	DR	There are some risks to confirm CM for baseline emission determination during next crediting period since the constitution of low cost or must run power generation resources will be changed in Northeast China Power Grid		OK
B.3. Additionality Determination <i>The assessment of additionality will be validated with focus on</i>					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
<i>whether the project itself is not a likely baseline scenario.</i>					
B.3.1. Is the project additionality assessed according to the methodology?	/1/ /4/ /6/ /17/ /19/ /22/ /30/ /32/	DR	<p>The additionality of the project is demonstrated by applying the “Tool for demonstration and assessment of additionality” of version 05.1.</p> <p>Step 1. Identifying alternatives to the project: The alternative baseline scenarios have been identified as below:</p> <ul style="list-style-type: none"> a) Construction of a coal-fired power plant with equivalent installed capacity or annual electricity generation. b) The proposed project activity not undertaken as a CDM project activity; c) Construction of a power plant using other renewable energy, such as hydro with equivalent installed capacity or annual electricity generation; d) Equivalent electricity service provided by the Northeast China Power Grid. <p>The alternative a) was eliminated based on the evidence that in China the thermal power plant with a capacity less than 135 MW are prohibited to be built in areas covered by large grids such as provincial grids /19/ The alternative c) was eliminated because compared with other renewable energy technology in China, only small hydro power</p>	CL3	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			<p>might have better benefits than wind power/32/. While Dailing area, where the project is located, is the tree-covered mountains with no rivers, lacks exploitable hydro resources for equivalent installed capacity /6/ therefore, the alternative c) is deemed unrealistic and should be eliminated.</p> <p>Since alternative b) and d) are credible and realistic alternatives in conformance with current relevant laws and regulations in China, the following analysis will be considered.</p> <p>Step 2. Investment analysis: The benchmark analysis with the internal rate of return of project as the indicator has been selected. The benchmark of 8% (<i>after tax</i>) for the project IRR has been selected and regarded as a benchmark for investments in hydropower plants, fossil fuel fired plants and wind farm projects/16/. Based on the data from the feasibility study report/6/ and the proposal letter of on-grid tariff from the local relevant authorities/22/, the project IRR without CER revenues is 6.95% /26/, which shows that the project is not financially attractive compared to the benchmark in the</p>		

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			<p>absence of CDM benefits.</p> <p>In line with the EB guidance in EB38 minutes of meeting paragraph (54), DNV confirms that</p> <p>a) The input parameters (except tariff) used in the financial analysis are taken from the Feasibility Study Report (FSR) developed by China Fulin Windpower Development Corporation & Xinjiang Windpower Design Institute in April 2006 and approved by Development and Reform Commission of Heilongjiang Province on 01 September 2006 /6/. The electricity tariff of 0.61 RMB/kWh (incl. VAT) or 0.5622 RMB/kWh (excl. VAT) has been sourced from the propositional letter of Yichun Planning & Statistical Bureau dated 20 December 2006 /22/, compared with 0.6176 RMB/kWh (excluding VAT) estimated in the FSR/6/. The input parameters used in the financial analysis can thus be considered information provided by independent and recognized sources.</p> <p>b) DNV has compared the input parameters for the financial analysis included in the PDD with the parameters stated in the</p>		

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			<p>FSR /6/and above mentioned source /22/ and was able to confirm that the values applied are consistent with the value stated in the FSR and above mentioned source /22/ The electricity tariff information (20 December 2006) /22/ was available at the time when decision to proceed with the project was made (10 February 2007) /30/</p> <p>c) The FSR was approved on 01 September 2006 and thus only 5 months prior to the decision to proceed with the project activity which was on 10 February 2007. Given this relative short period of time between approval of the FSR and the decision to proceed with the project activity it is unlikely in the context of the project that the input values would have materially changed and that it is thus reasonable to assume that the FSR/6/ and the propositional letter for the grid tariff (as of 20 December 2006)/22// have been the basis of the decision to proceed with the investment in the project.</p> <p>d) The input parameters used in the financial analysis were compared with the data</p>		

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			<p>reported for other similar proposed CDM projects in the Heilongjiang province, by comparing investment costs per MW, electricity tariff, PLF and percentage of O&M costs relative to total investment costs, etc. By in addition applying our sectoral competence, DNV was able to confirm that the input parameters used in the financial analysis are reasonable and adequately represent the economic situation of the project.</p> <p>A sensitivity analysis has been assessed with regards to critical parameters contributing more than 20% to the cost or revenue: the total investment, annual O&M costs, tariff and annual output.</p> <p>A sensitivity analysis shows the changes to different degrees in accordance with the fluctuation of three parameters within the range of negative 10 percent to positive 10 percent. It could be seen that the project IRR begins to exceed the benchmark in the case that the total investment decreases by about 10% and the annual output increases by about 10%. The annual O&M cost has little effect on the impact of IRR, which, therefore shall be regarded as an insensitive factor.</p>		

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			<p>However, please show the specific data/evidence mentioning in the PDD for the sensitivity analysis that it is difficult to lower total investment and the probability that annual electricity output higher than 10% the estimated value is very small.</p> <p>Also the detailed IRR calculation spreadsheet is required to be provided.</p> <p>Some problems showing at table 1 of B.5 of PDD are as below:</p> <ol style="list-style-type: none"> 1) The data source should be indicated. 2) The evidence of electricity tariff/grid access agreement (0.6176yuan/kw.h in FS, 0.5595yuan/kw.h in PDD) 3) Some other key parameters such as O&M cost, etc. should be given in table 1 of B.5. <p><u>Step 3</u>: Barrier analysis: this step is not used for the proposed project investment analysis.</p> <p>Step 4: Common practice analysis: The common practice shows the similar wind farm projects existing in Heilongjiang Province with the capacity under 50MW.</p>		

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			However, the data source for showing above should be provided. Some links given in PDD for supporting the description of common practice are not correct. Also it is not showing all the wind farm projects in Heilongjiang province such as Daqingshan 16.15MW wind farm project. The wind power project statistics 2007 to be provided		
B.3.2. Are all assumptions stated in a transparent and conservative manner?	/1/	DR	Ditto	CL3	
B.3.3. Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	Ditto	CL3	
B.3.4. If the starting date of the project activity is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to proceed with the project activity?	/1/ /6/	DR I	In April 2006, the non-existing project owner - Yichun Xinganling Wind Farm Co., Ltd. entrusted China Fulin Windpower Development Corp. & Xinjiang Windpower Design Institute to conduct feasibility study for Yichun Xiaochengshan Wind Power Project, which mentioned CDM consideration for the proposed project according to No.10 issuance order by NDRC, the Ministry of Science & Technology & the Ministry of Foreign Affairs dated 30 June 2004 regarding "The Provisional Stipulation	CL4	

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			<p>of CDM Project Operation and Management”.</p> <p>However, the documents mentioned above needs to be provided.</p> <p>Also the evidence for starting the construction of the project needs to be provided.</p> <p>When the project owner had been changed, the reason and relationship between two different owners need to be explained & provided.</p> <p>The incentive from CDM is required to be described in PDD and timeline information is required further such as civil work construct date.</p>		
B.4. Calculation of GHG Emission Reductions – Project emissions <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.7.1. Are the calculations documented according to the approved methodology and in a complete and transparent	/1/ /4/ /6/	DR	Project emission is regarded as zero as the project is a renewable energy (wind source)		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
manner?			project.		
B.7.2. Have conservative assumptions been used when calculating the project emissions?	/1/	DR	N/A		OK
B.7.3. Are uncertainties in the project emission estimates properly addressed?	/1/	DR	N/A		OK
B.5. Calculation of GHG Emission Reductions – Baseline emissions <i>It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.5.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /13/	DR	<u>Operating Margin (OM) calculation:</u> Because of unavailability of corresponding data in china, the only simple OM emission factor calculation method is selected. Following the EB guidance, the average emission factor for the grid for each fuel type is calculated based on a 3-year average of the most recent statistics available. <u>Build Margin (BM) calculation:</u> Since AM0005 was replaced by ACM0002, the deviation is deemed to be applicable to this project.	CL5	

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			It is not in a complete and transparent manner as which year's data are chosen for the thermal power capacity additions calculation, and how the coal consumption efficiency of the best technology commercially available in China is taken for calculating the emission factor of BM.		
B.8.1. Have conservative assumptions been used when calculating the baseline emissions?	/1/	DR	Yes.		OK
B.8.2. Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR	No significant uncertainties can be addressed for this project.		OK
B.6. Calculation of GHG Emission Reductions – Leakage <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.6.1. Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /4/	DR	Emissions arising due to activities such as power plant construction, fuel handling etc, could potentially give rise to leakage. However, project participants do not need to consider these emission sources as leakage in applying this methodology ACM0002. In conclusion, no leakage is expected for the proposed project activities.		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
B.6.2. Have conservative assumptions been used when calculating the leakage emissions?	/1/	DR	Ditto		OK
B.6.3. Are uncertainties in the leakage emission estimates properly addressed?	/1/	DR	Ditto		OK
B.7. Emission Reductions <i>The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.</i>					
B.7.4. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/1/	DR	Yes, the total emission reductions from the project are estimated to be on the average 114 606 tCO ₂ e per year over the selected 7-year renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.		OK
B.8. Monitoring Methodology <i>It is assessed whether the project applies an appropriate monitoring methodology.</i>					
B.11.1. Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/1/ /4/	DR	The monitoring plan is in accordance with the approved monitoring methodology ACM0002 (version 07) "Consolidated monitoring methodology for grid-connected electricity generation from renewable		OK

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			sources” and is in a complete and transparent manner.		
B.11.2. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/	DR	Yes. All the relevant data records will be kept for 2 years in electronic form after the end of the crediting period.		OK
B.9. Monitoring of Project Emissions <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
B.9.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/ /4/	DR I	There are no emissions from the project activity to be collected and archived.		OK
B.10. Monitoring of Baseline Emissions <i>It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.</i>					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/ /4/	DR	The project uses the <i>ex-ante</i> determination of emission factor for grid electricity. Only electricity supplied to the grid will be monitored and double checked <i>ex-post</i> through the metering equipment and electricity sales receipts.		OK
B.10.2. Are the choices of baseline GHG indicators	/1/	DR	Yes. The choice of baseline indicators is		OK

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reasonable and conservative?	/4/		reasonable and conservative.		
B.10.3. Is the measurement method clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/1/ /4/	DR	Yes. The meter is installed at transformer station, which measure the total electricity supplied to the grid.		OK
B.10.4. Is the measurement <i>equipment</i> described and deemed appropriate?	/1/ /4/	DR	The electricity generated and delivered to the grid will be monitored by gateway metering equipment and cross-checked against electricity sales receipts.		OK
B.10.5. Is the measurement <i>accuracy</i> addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/ /4/	DR	The measurement accuracy of the electricity meter is 0.2S, bidirectional. The procedures on how to deal with erroneous measurements are in place.		OK
B.10.6. Is the measurement <i>interval</i> for baseline data identified and deemed appropriate?	/1/ /4/	DR	The electricity supplied to the grid will be measured hourly and recorded monthly.		OK
B.10.7. Is the registration, <i>monitoring</i> , <i>measurement</i> and <i>reporting</i> procedure defined?	/1/ /4/	DR	Yes. Such information is available in the Monitoring Plan of the PDD.		OK
B.10.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /4/	DR	Yes. The metering equipments will be properly calibrated and checked annually for accuracy.		OK
B.10.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/ /4/	DR	Yes. All the day-to-day records handling including what records to keep, storage area of records and how to process performance documentation is identified in the Monitoring		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview		Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
				Plan of PDD.		
B.11. Monitoring of Leakage <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>						
B.11.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/ /4/	DR		Project participants do not need to consider leakage in applying this methodology.		OK
B.11.4. Are the choices of project leakage indicators reasonable and conservative?	/1/	DR		Ditto		OK
B.11.5. Is the measurement method clearly stated for each leakage value to be monitored and deemed appropriate?	/1/	DR		Ditto		OK
B.12. Monitoring of Sustainable Development Indicators/ Environmental Impacts <i>It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>						
B.12.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/1/ /7/	DR		DNA of China does not require collection and archiving of data related to environmental, social and economic impacts. The environmental impacts will be monitored by local environmental authority.		OK
B.12.2. Does the monitoring plan provide for the collection and archiving of relevant data	/1/ /7/	DR		N/A		OK

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concerning environmental, social and economic impacts?					
B.12.3. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/1/ /7/	DR	N/A		OK
B.13. Project Management Planning <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
B.13.1. Is the authority and responsibility of overall project management clearly described?	/1/	DR	The management structure is illustrated in the PDD. The management group is responsible for the overall CDM management of the proposed project.		OK
B.13.2. Are procedures identified for training of monitoring personnel?	/1/ /27/	DR	Yes. The procedures have described that the Management Group has all received sufficient training in terms of monitoring and verification. However, the training records have not been maintained.	CL-2	OK
B.13.3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	Considering the actual status of wind farm project activities, there will be no emergencies foreseen which can cause unintended emissions.		OK
B.13.4. Are procedures identified for review of reported	/1/	DR	Yes, the procedures are identified for review		OK

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results/data?			of reported results and data.		
B.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR	Yes.		OK
C. Duration of the Project/ Crediting Period <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
C.1.1. Are the project's starting date and operational lifetime clearly defined and evidenced?	/1/ /6/	DR	The project's starting date of construction as per PDD is 15 January 2007, but the evidence for that needs to be provided. The estimated lifetime of the project is 21 years, and evidenced by FSR.	CL 4	OK
C.1.2. Is the start of the crediting period clearly defined and reasonable?	/1/	DR	The starting date of the crediting period mentioned in the PDD as 15 October 2007 needs review as it is before the likely date of registration.	CL 4	OK
D. Environmental Impacts <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
D.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/ /7/	DR	Yes. The analysis of the environmental impacts of the project activities such as land use, noise, wastewater and solid waste, air		OK

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				pollution, ecological environment, etc. has been sufficiently described in the PDD.		
D.1.2.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/ /7/	DR	Yes. There are some Chinese local standards for an EIA, and the EIA for this project activity was approved by the Environmental Protection Bureau of Heilongjiang Province.		OK
D.1.3.	Will the project create any adverse environmental effects?	/1/ /7/	DR	No. The project will not create any adverse environmental effects as per EIA report.		OK
e)	Are transboundary environmental impacts considered in the analysis?	/1/ /7/	DR	There are no transboundary environmental impacts foreseen for the project.		OK
f)	Have identified environmental impacts been addressed in the project design?	/1/ /6/ /7/	DR	Yes. The identified environmental impacts have been addressed in the project design.		OK
g)	Does the project comply with environmental legislation in the host country?	/1/ /7/	DR	Yes. The project complies with Chinese environmental legislation as the EIA was approved by local authority.		OK
E. Stakeholder Comments <i>The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i>						
E.1.1.	Have relevant stakeholders been consulted?	/1/ /7/	DR I	Yes. The project owner successfully held a stakeholder meeting in Dailing County dated on 01 October 2006. Total 8 stakeholder representatives from the Development and		OK

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			Reform Bureau & the Environmental Protection Bureau of Dailing County, the Electricity supply bureau & the Daxing Village of Dailing district, etc. were attending the meeting. Also The local residents were invited through distributing and collecting responses to the questionnaires. All the questionnaires with comments have been verified by DNV.		
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR I	Yes. The meeting and distribution of questionnaires had been used to invite the comments from the local stakeholders.		OK
E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR	Yes. The stakeholder consultation process is in accordance with Chinese EIA regulations.		OK
E.1.4. Is a summary of the stakeholder comments received provided?	/1/	DR I	Yes. A summary of the stakeholder comments received described in the PDD.		OK
E.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR	No negative comments have been received on the project. Meanwhile, the project owner will concern much on the suggestions from stakeholders and put all of the measures listed in the EIA into effect during construction and operation, so as to achieve		OK

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			environmental, social and economic benefits.		

Table 3: Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CAR 1</p> <p>No. The letters of approval from the DNAs of China and Annex I Party Austria have not been obtained, for which all project participants will be not confirmed to be authorized by an involved Party.</p>	<p>A.2.2 A.2.3 A.4.1</p>	<p>The letters of approval from DNA of China and Austria have been provided to DNV.</p>	<p>OK.</p> <p>The LoA from DNA of China was issued on 26 August 2007.</p> <p>The LoA from DNA of Austria was issued on 24 September 2007.</p> <p>This CAR is thus considered closed.</p>
<p>CL 1</p> <p>It has to be clarified whether the project design engineering reflects current good practices in China, and whether the imported technology used in the project will result in better performance than commonly used technologies in China.</p>	<p>A.3.1 A.3.2</p>	<p>Yes, The Gamesa 52 wind turbine was manufactured domestically, but the whole set technology was imported by Gamesa corp. from Spain, and has been applied in the field of wind farms worldwide. The project design engineering therefore reflects current good practices in china, and the high quality and advanced technology of the turbine will result in better performance than commonly used technologies in china.</p>	<p>OK.</p> <p>By cross-checking the contract, DNV is able to verify that The imported technology of Gamesa from Spain is used in the project. The project design engineering reflects current good practices.</p> <p>This CL is closed.</p>
<p>CL 2</p> <p>As per training schedule for production personnel and monitoring plan, the entire management group has received the training; however, the training records have not been maintained.</p>	<p>A.3.3 B.13.2</p>	<p>The training records are maintained by the CDM department of the project owner, and have been provided to DNV for validation.</p>	<p>OK.</p> <p>The documented evidence has been provided to DNV for validation. It is verified the personnel of the project was trained from June 2006 to August 2007.</p> <p>This CL is closed.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CL3</p> <p>a) Please show the specific data/evidence mentioning in the PDD for the sensitivity analysis that it is difficult to lower total investment and the probability that annual electricity output higher than 10% of the estimated value is very small.</p> <p>b) The detailed IRR calculation spreadsheet is required to be provided.</p> <p>c) Some problems showing in table 1 of B.5 of PDD are as below:</p> <ul style="list-style-type: none"> - The data source should be indicated. - The evidence of electricity tariff/grid access agreement (0.6176yuan/kw.h excluding VAT in FS, RMB0.5595 yuan/kwh in PDD) - Some other key parameters such as O&M cost, etc. should be given in table 1 of B.5 <p>d) The data source for showing in the table 3 of B.5 should be provided.</p> <p>Some links given in the PDD for supporting</p>	<p>B.3.1</p> <p>B.3.2</p> <p>B.3.3</p>	<p>a) The sensitivity analysis has been re-analyzed to show the changes of four critical parameters (PLF, total investment, annual O&M costs and on-grid electricity output) by determining the value at which the IRR will be equal to the benchmark. See the revised PDD for details.</p> <p>b) The detailed IRR calculation spreadsheet is provided to DNV.</p> <p>c) The problems with in table 1 of B.5 of PDD are solved as below:</p> <ul style="list-style-type: none"> - the data sources have been given in the PDD - tariff evidence & grid access approval have been provided to DNV. - O&M cost is given in the table. <p>d) All the data sources have been provided; the links are corrected and table 4 of B.5 of the PDD has been updated.</p>	<p>a) OK.</p> <p>The process of sensitivity analysis has been obtained and the calculation has been confirmed to be reasonable.</p> <p>b) OK.</p> <p>The spreadsheet of the calculation of IRR has been obtained. It has been verified that the IRR calculation is reasonable</p> <p>c) OK.</p> <p>The data source and evidence on the O&M cost, the tariff and grid access approval have been obtained and verified .</p> <p>d) OK</p> <p>The data source for IRR calculation and common practice analysis has been obtained and verified</p> <p>Daqingshan 16.15MW wind farm project is registered in April 2007 and as per tool for assessment and demomstration additionality it is not provided in the republished PDD</p> <p>This CL is closed.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>the description of common practice are not correct.</p> <p>Also it is not showing all the wind farm projects in Heilongjiang province such as Daqingshan 16.15MW wind farm project for common practice analysis .</p> <p>The wind power project statistics 2007 to be provided</p>			
<p>CL4</p> <p>a) No.10 issuance order by NDRC, the Ministry of Science & Technology & the Ministry of Foreign Affairs dated 30 June 2004 regarding “The Provisional Stipulation of CDM Project Operation and Management” mentioned in the FSR needs to be provided.</p> <p>b) The evidence for starting date of the project needs to be provided.</p> <p>c) When the project owner had been changed, the reason and relationship between two different owners need to be explained & provided.</p> <p>d) The incentive from CDM is required to be described in PDD and further timeline</p>	<p>B.3.4</p> <p>C.1.1</p> <p>C.1.2</p>	<p>a) No.10 issuance order “The Provisional Stipulation of CDM Project Operation and Management” issued by NDRC, the Ministry of Science & Technology & the Ministry of Foreign Affairs dated 30 June 2004 has been superseded by the one dated October 12th 2005. The link is as below: http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=458</p> <p>b) The evidence for starting of the project has been provided to DNV.</p> <p>c) Yichun Xing An Ling wind farm Co., Ltd, the name of the project owner in the feasibility study report</p>	<p>a) OK. The documents are verified.</p> <p>b) OK. The project construction contract was signed on 10 February 2007, which is earliest date when PP commit to expenditure related to implementation of the project as per EB requirement it is the starting date of the project activity.</p> <p>c) OK. All the evidences have been verified.</p> <p>d) OK.</p> <p>The evidence of considering CDM in decision-making prior to the starting of project activity has been described and verified.</p> <p>e) OK.</p> <p>It has been revised in the PDD.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>information is required such as civil work construct date..</p> <p>e) The starting date of the crediting period mentioned in the PDD as 15 October 2007 needs review as it is before the likely date of registration.</p>		<p>is a temporary name to conduct the preparation work of the project so that the project wouldn't be delayed by waiting for the permanent name. Yichun Longyuan Wind Power Co., Ltd. is the real & permanent project owner approved by the government of Heilongjiang province and Yichun Industrial and Commercial Administration Bureau. The evidence is provided to DNV.</p> <p>d) The project owner conceptualized the CDM in April 2006 during the preparation of the feasibility study report. The project was approved on 01 September 2006. However, on 20 December 2006, the project owner received the proposal letter of on-grid tariff for the proposed project issued by Yichun Planning & Statistical Bureau, which was confirmed the lower tariff resulting in lower IRR. The project owner had to seek CDM support. On 30 December 2006, the CDM cooperation contract was signed between the project owner and</p>	<p>This CL is closed.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>China Fulin Windpower Development Corp. Then the construction contracted on 10 February 2007 as first contract.</p> <p>Therefore, it has been demonstrated that CDM was seriously considered in the decision to proceed with the project activity.</p> <p>e) The estimated starting date of the crediting period is 01 March 2009 or the date of registration which is ever later.</p>	
<p>CL5</p> <p>It is not in a complete and transparent manner as which year's data are chosen for the thermal power capacity additions calculation, and how the coal consumption efficiency of the best technology commercially available in China is taken for calculating the emission factor of BM.</p>	B.5.1	<p>The latest data from China Electric Power Yearbooks 2003- 2007 has been used for thermal power capacity additions calculation. The capacity additions from the years 2002 to 2006 is chosen and reach 19.39% of total installed capacity. The weight of installed capacity additions for thermal power plant is accounted for 87.57% of total installed capacity additions.</p> <p>The standard coal consumption of 329.94gSCE/kWh is used to determine the BM emission factor, which is from publicly available data applied for</p>	<p>OK.</p> <p>The spreadsheet and the data source have been obtained and the calculation has been confirmed to be reasonable.</p> <p>This CL is closed.</p>

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		China's Regional Grid Baseline Emission Factor Calculation (BM) issued by Chinese DNA dated on 18 July 2008 /10/.	

APPENDIX B

CERTIFICATES OF COMPETENCE



CERTIFICATE OF COMPETENCE

Jian Dong Ma

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1

GHG Auditor:	Yes		
CDM Validator:	--	JI Validator:	--
CDM Verifier:	--	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):			--

Høvik, 30 October 2007

Michael Lehmann

Michael Lehmann

Technical Director, International Climate Change Services

Weidong Yang

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	JI Validator:	--
CDM Verifier:	--	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):			--

Technical Reviewer for (group of) methodologies:

ACM002, AMS-IA-D, AM0019, AM0026, AM0029, AM0045	Yes
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Høvik, 1 September 2008

Michael Lehmann

Michael Lehmann

Technical Director, Climate Change Services



CERTIFICATE OF COMPETENCE

Michael Lehmann

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

GHG Auditor:	Yes		
CDM Validator:	Yes	JI Validator:	--
CDM Verifier:	Yes	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	AM0027	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	AM0030	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	AM0031	Yes
ACM0004, ACM0012	Yes	AM0032	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	AM0035	Yes
ACM0007	Yes	AM0038	Yes
ACM0008	Yes	AM0041	Yes
ACM0009, AM0008, AMS-III.B	Yes	AM0034	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	AM0043	
AM0009, AM0037	Yes	AM0046	
AM0013, AM0022, AM0025, AM0039, AMS-III.H, AMS-III.I	Yes	AM0047	
AM0014	Yes	AMS-II.A-F, AM0044	Yes
AM0017	Yes	AMS-III.A	Yes
AM0018	Yes	AMS-III.E, AMS-III.F	Yes
AM0020	Yes		
AM0021, AM0028, AM0034, AM0051	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director



CERTIFICATE OF COMPETENCE

Ramesh Ramachandran

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJi-i1)

GHG Auditor:	Yes		
CDM Validator:	Yes	JI Validator:	--
CDM Verifier:	Yes	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 4, 5, 13		
Technical Reviewer for (group of) methodologies:			
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes		

Høvik, 22 December 2006

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

Qinghong (Rowena) Jiao

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJi-i1)

GHG Auditor:	Yes		
CDM Validator:	--	JI Validator:	--
CDM Verifier:	--	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 18 July 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director



CERTIFICATE OF COMPETENCE

Shu Yong Sun

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

GHG Auditor:	Yes		
CDM Validator:	Yes	JI Validator:	--
CDM Verifier:	--	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 12 March 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

Barbara Lara

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

GHG Auditor:	Yes		
CDM Validator:		JI Validator:	--
CDM Verifier:	--	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 2 May 2008

Michael Lehmann
Technical Director, Climate Change Services



CERTIFICATE OF COMPETENCE

Mari Grooss Viddal

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJi-i1)

GHG Auditor:	Yes		
CDM Validator:	Yes	JI Validator:	--
CDM Verifier:	--	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	--		

Technical Reviewer for (group of) methodologies:

ACM0001, AM0002, AM0003, AM0010, Yes
AM0011, AM0012, AMS-III.G

ACM002, AMS-I.A-D, AM0019, AM0026, Yes
AM0029, AM0045

Høvik, 26 September 2007

Michael Lehmann

Michael Lehmann

Technical Director, International Climate Change Services